REMARKS

Claims 1 through 12 remain in the application. No claim has yet been allowed.

1. The disclosure was objected to because of informalities, in particular with reference to the phrase at page 10, lines 21-22. This phrase has now been corrected. The Applicants have reviewed the remainder of the specification and have corrected other typographical errors.

2. Fig. 4 was objected to as lacking a reference numeral "200". This reference numeral has now been added to the "proxy application" block which appears at the top of the replacement sheet enclosed herewith.

3. Claims 1 through 3 were objected to because of various informalities.

A comma has been added after the word "network" in Claim 1.

It is believed that the phrase "at least one remote network accelerator" is now proper.

The multiple parallel connections have now been clarified as being multiple transport layer connections referred to earlier in the claim.

Claims 2 and 3 have been clarified as suggested by the Examiner.

4. The Examiner rejected Claims 6-12 under 35 U.S.C. 112, second paragraph as being indefinite. The Examiner specifically requested that structure be added to the claim explaining what happens when packets are locally addressed.

The Applicant has not amended these Claims because it is not legally necessary to do so. A claim does not have to recite all possible results or recite supposedly missing elements that are neither essential to nor necessary for practicing the Applicant's invention. See the Manual of Patent Examining Procedure, Section 2172.01 (a claim does not necessarily fail to comply with 35 U.S.C. 112, second paragraph, where the recited elements serve independent purposes.)

In the present case, the invention of Claim 6 has to do with processing packets that addressed to a destination that is <u>not</u> local, and then routing them in a specific way via a socket

interface. It does not matter to the invention what happens to packets addressed to a destination that is local. They might be dropped or they might be routed to local destinations in other ways. But that is irrelevant.

Further, an enablement rejection based on the grounds that a critical limitation is missing from a claim should be made only when the language of the specification indicates that the limitation is necessary for the invention to function as intended. Language in the disclosure, including the abstract, can rebut any argument of criticality. See MPEP 2164.08(c).

Referring in particular to the specification at page 7, beginning at line 11 and continuing through line 28 or thereabouts, the invention concerns the situation when client machine A connected to a first local area network (LAN) 11-1 wishes to establish a connection with another client machine B in a second remote LAN 11-2 (that is a machine that is not local). A connection packet request is first transmitted from machine A to an accelerator, with the connection request specifying a port A and a port B for machine B. At the TCP level, the connection request may take the form of an SYN message. The accelerator has a proxy application that intercepts the connection request. Upon examining the destination address and the port specified in the intercepted request, the accelerator replies to machine A with a proxy acknowledgment in such a way as to fool machine A into thinking it is connected directly to machine B when in fact it is not. The specification then goes on to explain how a network accelerator 14-1 then may set up one or more active TCP connections as a proxy connection to the remote network accelerator 14-2.

Thus it is clear the invention has to do with handling the traffic intended for a remote network. The invention does not concern the handling of local traffic. Thus, any claim element describing how local traffic is neither necessary nor required.

Claims 9 and 10 have been amended to address the other concerns raised by the Examiner.

5. Claims 1, 2 and 6-12 were rejected as being anticipated by Bartlett, *et al.*, U.S. Patent Publication 2003/0177396A1.

Before discussing the prior art it will be instructive to continue the discussion of Applicants' invention. With Applicants' invention, a network accelerator 14 intercepts network

layer (e.g. IP packets), and requests that multiple transport layer connections (e.g., TCP layer connections) be established between the local network accelerator 14-1 and the remote network accelerator 14-2. Thus, packets associated with a single network layer connection are intercepted and routed on one of multiple transport layer TCP connections (sessions). A number, N, of parallel TCP connections are thus maintained between the network accelerators 14-1 and 14-2, even when only a single network layer connection between nodes 10-1 and 10-2 is to be maintained. These multiple TCP connections are not spoofed in any manner.

The present invention thus provides an architecture for increasing performance over a Wide Area Network (WAN). A proxy application in each network accelerator is responsible for establishing the multiple parallel Transmission Control Protocol (TCP) layer connections. A transmitted data stream for a given connection is thus divided or "striped" across the multiple parallel TCP connections.

The multiple TCP connections may be opened over a single persistent physical layer (PHY) connection although if sufficient network resources are available, multiple PHY connections may also be used. See the specification as originally filed at pages 5 and 6.

By increasing the number TCP connections implemented over a persistent physical layer connection, throughput is actually increased. This reduces the need for wait states since it is less likely that a specified TCP window size will be reached for a given desired through put.

The invention may also use data compression techniques and a compression dictionary to process data streams belonging to a given connection. Typically, different streams of the same connection will have a common context. In this instance, the dictionary will be relevant to contribute to overall performance to all streams in that same connection.

Turning attention now to the Bartlett publication, it does describe one way to improve network performance. In the Barlett approach, Virtual Private Network (VPN) peers are integrated with respective Performance Enhancement Proxying (PEP) peers. PEP peers 101 intercepts a TCP connection packet and locally acknowledge that packet. It then transports the packet to its PEP peer 107 via a protocol which is designed to overcome or reduce the limitations of conventional TCP/IP networks. The optimize protocol is referred to as a "back bone protocol", and a "back bone connection" is used to connect the pair of PEP peers 101 and 107. [Bartlett, par. 0066]

In Bartlett's scheme, a TCP spoofing kernel 513 locally acknowledges data segments received from an IP host 301. This allows the sending IP host 301 to send additional data immediately. As a result, this local sending of acknowledgments is said to allow the sending IP host to increase its TCP window size at a much faster rate than would supported if a normal end-to-end TCP connection were used. The TCP spoofing kernel 513 thus takes on the responsibility for reliable delivery of data that it has acknowledged over the backbone. [Barlett, par. 0098]

Furthermore, it is said that in Bartlett's backbone protocol kernel 515, multiple TCP connections are multiplexed onto and carried by a single backbone connection. [Bartlett, par. 0099]

We thus see at least two important distinctions between the Bartlett approach and the Applicants' approach as now recited in the revised claims.

First, the Applicants terminate the TCP connection on an end to end basis, e.g., Applicants' claimed invention requires operating two or more transport layer connections between the local accelerator and a remote accelerator. The Bartlett approach instead uses a TCP spoofing kernel 513 that locally acknowledge TCP packets. In other words, the present invention does not spoof TCP connections, it opens them end to end, requiring TCP layer acknowledgments from the far end.

As a second distinguishing feature, the present involves breaking up a single network layer connection across multiple TCP connections – that is, Claim 1 requires "two or more transport layer connections" for a given network layer connection. This feature is also different from Bartlett's teaching, which is merely to provide multiple TCP connections over a single (physical layer) connection.

There are several advantages to Applicants' approach. First, one can negotiate window sizes from the service side differently from those on the client side. This provides a distinct advantage. For example, if the client side requires a small data window, the server can have a larger window more appropriate for the server.

Secondly, one does not have to worry about TCP sequence number synchronization with the Applicants' approach. This would have to be a included feature of any Barlett-like TCP spoofer, to ensure orderly packet delivery.

For these reasons, we believe Claim 1 and Claim 6 as amended are now allowable.

Claims 3 through 5 were also rejected under 35 USC 103(a) as being unpatentable over Bartlett when combined with Dillon, U.S. Patent 6,658,463. Dillon does disclose dictionary based compression algorithms. While they are used in the context of a communication system, the addition of Dillon still does not render the claim obvious. As explained above, Bartlett does not anticipate all of the elements of Claim 1 as now amended. Thus Claim 3, which depends from amended Claim 1, should also be allowable.

Furthermore, we point out that Claim 5 requires using a dictionary associated with an existing connection to be re-used to service a new connection. We can find no such feature suggested in Dillon at column 15, lines 35-48. That part of Dillon simply indicates that loss-less data compression algorithms, such as LZW, use a dictionary which is built up on both ends of a connection. Compression is achieved by sending a reference to the dictionary in place of an uncompressed string of bytes. The algorithm may automatically tune the dictionary as data is transferred so that the dictionary is well prepared to provide high compression should data similar to earlier previously transferred data be submitted for compression.

However, that does not amount to a suggestion of sharing a common data dictionary across multiple connections.

Claim 5 is this patentable for this further reason.

6. An Information Disclosure Statement (IDS) is being filed concurrently herewith. Entry of that IDS is respectfully requested.

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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Amendments to the Drawings

Reference number 200 is being added to Fig. 4. Please refer to the attached marked up copy of the drawing.

Attachment: Replacement Sheet
Annotated Marked-Up Drawings

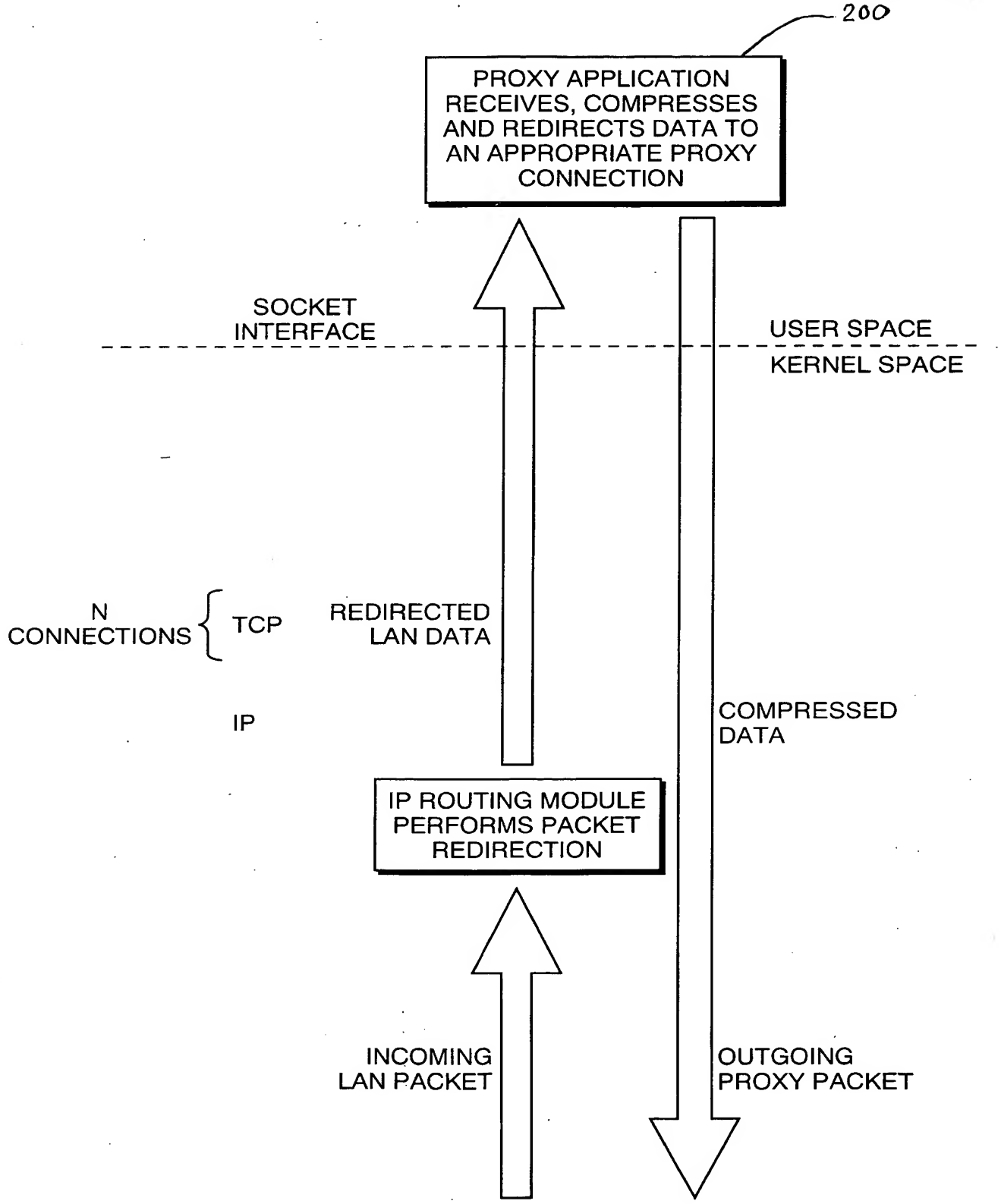

FIG. 4